CLAIMS

1. A storage device available for increasing storage capacity, comprising a controller and at least a solid-state storage medium; said controller having a system interface connected to external system end, a microprocessor processing system instructions, and a memory interface communicating with said solid-state storage medium; wherein: said controller has a data compression module between said system interface and said memory interface, and the data compression module compresses the original data transferred from the system interface in 1/N compression ratio under the control of the microprocessor and then stores the compressed data into said solid-state storage medium via said memory interface.

2. A storage device available for increasing storage capacity according to claim 1, wherein said storage device has a data decompression module between said system interface and said memory interface; said decompression module, under the control of said microprocessor, retrieves compressed data stored in said solid-state storage medium and decompresses it to original data to output.

3. A storage device available for increasing storage capacity according to claim 1 or 2, wherein said storage device has a first data cache electrically connected to said system interface, said microprocessor, said data compression module and said data decompression module.

4. A storage device available for increasing storage capacity according to claim 1 or 2, wherein said controller has a second data cache electrically connected to said memory interface, said microprocessor, said data compression module and said data decompression module.

5. A storage device available for increasing storage capacity according to claim 1 or 2, wherein said data compression module and said data decompression module are in said controller.